Refer to: Cummings SR: Kicking the habit: Benefits and methods of quitting cigarette smoking (Topics in Primary Care Medicine). West J Med 1982 Nov; 137:443-447

Topics in Primary Care Medicine

Kicking the Habit: Benefits and Methods of Quitting Cigarette Smoking

STEVEN R. CUMMINGS, MD, *San Francisco*

"Topics in Primary Care Medicine" presents articles on common diagnostic or therapeutic problems (such as dizziness, pruritus, insomnia, shoulder pain and urinary tract infections) encountered in primary care practice that generally do not fall into well-defined subspecialty areas and are rarely discussed thoroughly in medical school, house staff training, textbooks and journals. Often the pathophysiology is poorly understood and clinical trials to assess the effectiveness of diagnostic tests or therapies may be lacking. Nevertheless, these problems confront practitioners with practical management questions.

The articles in this series discuss new tests and therapies and suggest reasonable approaches even when definitive studies are not available. Each article has several general references for suggested further reading. We hope this new series will be of interest and we welcome comments, criticisms and suggestions.

—BERNARD LO, MD
STEPHEN J. McPHEE, MD
Series' Editors

CIGARETTE SMOKING is the most important preventable cause of disease and death in the United States. An estimated 325,000 people die prematurely in the United States each year because of cigarette smoking, and life expectancies of middle-aged two-pack-a-day smokers are eight years shorter than for nonsmokers.

This article will review a few of the most important links between smoking and specific diseases and review ways of helping smokers quit.

From the Division of General Internal Medicine, Department of Medicine, University of California, San Francisco.

Supported by the Kaiser Foundation Fellowship in General and Internal Medicine.

Reprint requests to: Steven R. Cummings, MD, Division of General Internal Medicine, 400 Parnassus Avenue, Room A-405, University of California, San Francisco, San Francisco, CA 94143.

Smoking-Related Disorders

Coronary Heart Disease

Approximately 25 percent of all deaths from coronary heart disease in the United States each year are attributable to cigarette smoking, and most of these deaths are sudden. For those younger than 65 years, smokers who quit smoking substantially reduce the risk of death from this disease even within the first year after quitting, though it requires 10 to 15 years for the risk to

decline to that of nonsmokers. After myocardial infarction those who quit smoking have 20 percent to 50 percent lower mortality during the next three to five years than those who continue to smoke.

Respiratory Diseases

Cigarette smokers lose 42 percent more work days than nonsmokers, mostly due to more frequent respiratory illnesses. Smokers are predisposed not only to frequent, severe and long-lasting upper respiratory tract infections, but also to bronchitis and emphysema.

For smokers in whom chronic obstructive lung disease has already developed, quitting smoking generally reduces cough and sputum production, and may improve forced expiratory volumes in a few. Those who continue to smoke lose airway function more rapidly than those who quit.

Cancer

An estimated 110,000 people in the United States will die of lung cancer in 1982 and about 85 percent of these deaths will be attributable to cigarette smoking. Lung cancer is projected to surpass breast cancer as the leading cause of cancer death among women during the 1980's.

Smokers are also 12 to 16 times more likely to have oral and laryngeal cancer develop and 2 to 6 times more likely to have esophageal cancer occur than nonsmokers. These risks are as great for pipe and cigar smokers as for cigarette smokers. The risk of cancer in those who quit gradually returns to that of nonsmokers during 10 to 15 years.

Population studies have also found a significantly increased risk of bladder, renal and pancreatic cancer among smokers.

Peptic Ulcer

Duodenal and gastric ulcers occur 1.5 to 2.0 times more frequently among smokers than among nonsmokers. In addition, peptic ulcers are only half as likely to heal as in nonsmokers during six weeks of intensive antacid or cimetidine therapy. Thus, quitting smoking may be as important to ulcer treatment as medication.

Pregnancy and Infant Health

Maternal smoking increases the risks of abruptio placentae, placenta previa, spontaneous abortion, neonatal death and sudden infant death. Infants born to smokers weigh an average of 200 grams less than those born to nonsmokers. Quitting smoking early in pregnancy reduces the risk of low birth weight to that of nonsmokers, and may reduce the risk of other complications.

The "Less Harmful" Cigarette

Over the past decade, the tar and nicotine content of the average cigarette in the United States declined 32 percent and 36 percent, respectively, and the proportion of smokers using filtered brands rose from 1 percent in the 1950's to 92 percent in 1979. The health implications of these changes are not clear. The tar and nicotine content of a cigarette as measured by automatic machine burning of cigarettes does not accurately measure the amount of tar and nicotine that is inhaled by the smoker. Smokers compensate for lower nicotine content in cigarettes by inhaling more. This may increase the inhalation of carbon monoxide and other toxins.

Long-term users of filtered and low-tar, low-nicotine cigarettes have a 10 percent to 40 percent lower risk of lung cancer than those who smoke unfiltered, high-tar cigarettes, but there is conflicting evidence about whether filter cigarettes lower in tar and nicotine reduce the risk of coronary heart disease. There is no evidence that filtered, low-tar and -nicotine cigarettes reduce the risk of respiratory disease, peptic ulcer disease, or the adverse effects on pregnancy. Smokers of these "less harmful" cigarettes remain at much greater risk of cardiac, pulmonary, malignant, and reproductive mortality and morbidity than nonsmokers and those who have quit.

Quitting Smoking

An estimated 29 million smokers have quit since 1964, but 30 percent of women and 40 percent of men still smoke. About two thirds of these current smokers have tried to quit at least once.

Nicotine Addiction

Most smokers are addicted to nicotine. This may explain why smoking is often so difficult to quit. During experimental intravenous administration of nicotine, smokers reduce both the number of cigarettes they smoke and the volume of smoke they inhale with each puff. When given experimental cigarettes of varying nicotine content, smokers tend to smoke more cigarettes and inhale larger puffs when the nicotine content is low than when it is high. These findings suggest

that smokers smoke in order to maintain a relatively steady serum nicotine level or at least to prevent nicotine withdrawal.

While attractive in its simplicity, nicotine addiction does not completely explain smoking behavior. When given nicotine-free cigarettes, most smokers will complain that the cigarettes are less satisfying but will continue to smoke. Moreover, about 10 percent of smokers experience no withdrawal symptoms after quitting. Therefore, it seems likely that social and environmental cues and pressures also play a role in sustaining smoking.

Withdrawal Symptoms

Withdrawal symptoms are the major reason that smokers fail in their attempts to quit. Some 90 percent of smokers report a variety of symptoms after quitting including craving for cigarettes, irritability, headache, insomnia, drowsiness, constipation, diarrhea and increased appetite. These symptoms are more intense during the first few days after quitting, and usually resolve within four weeks. However, some ex-smokers report craving for cigarettes years after quitting.

About two thirds of those who quit gain weight, averaging about 5 pounds. Although this weight gain is popularly attributed to an increased appetite, it may also be due to the decreased resting metabolic rate that accompanies withdrawal from cigarettes.

Methods of Quitting

About 95 percent of ex-smokers have quit without professional help. Health concerns are the predominant reason they give for stopping. Generally, smokers are more likely to quit because of current symptoms such as cough, dyspnea or sore throat than because of fear of future cancer or heart disease. Recent occurrence of a smoking-related disease in a friend or relative is also a common motive for quitting. The cost of cigarettes ($330 per year for one pack a day) is a reason adolescents often give for quitting, but cost rarely motivates adults to stop.

A wide variety of methods to help smokers quit have been developed, and all seem to have a similar pattern of efficacy. Each method initially helps 40 percent to 80 percent of smokers to quit, but most of these will relapse. Only 15 percent to 25 percent remain abstinent for one year. No single treatment method has proved consistently superior to others.

Aversive conditioning involves pairing a noxious stimulus such as an electric shock or a nauseating image with smoking. Most smokers who complete such treatments quit smoking and as many as two thirds of these may remain abstinent for at least a year. However, as many as half of the selected volunteers who start shock therapy drop out before the treatments are completed.

Rapid smoking is a form of aversive conditioning in which, over several sessions, smokers are asked to smoke cigarettes at a rate of about one puff every six seconds until they are unable to inhale another puff. It was initially claimed that by this method 100 percent of smokers quit and 60 percent remained abstinent at six months. However, recent studies of rapid smoking have found long-term abstinence rates of only 20 percent to 30 percent. During rapid smoking, carbon monoxide levels may reach 10 percent to 17 percent saturation accompanied by respiratory alkalosis. Because this combination may impair myocardial and tissues oxygenation, rapid smoking techniques are not recommended for smokers with significant heart or lung disease.

Stimulus control techniques involve systematic identification and avoidance of the social and environmental cues that the smoker associates with smoking. The smoker first records the situation in which each cigarette is smoked and then these situations are avoided, or modified. For example, a person who smokes during coffee breaks may substitute a brisk walk for his usual break or spend coffee breaks only in areas where smoking is prohibited. Because stimulus control techniques are so diverse, there has been no overall study of their efficacy.

Contingency contracting involves a contract by the smoker to quit and remain abstinent. The smoker may deposit money that is lost if he fails to quit or if he relapses. Contracts are probably more effective if they are made with nonsmokers.

Several techniques for reducing the severity of craving and other symptoms have been advocated including *hypnosis, relaxation training, biofeedback* and *acupuncture.*

Sedatives and other psychotropic agents have proved to be no more effective than placebos in helping smokers quit. Nicotine chewing gum has been used for several years in Europe and is undergoing clinical trials in the United States. The long-term toxicity of nicotine gum and its role in

helping smokers quit or ameliorating withdrawal symptoms is unclear.

Commercial Smoking Cessation Programs

Very few commercial programs have been critically evaluated. Those programs that use a multifactorial approach achieve higher success rates than those using a single method, but no optimum combination has been identified.

Follow-up is often neglected in commercial programs. If they provide follow-up at all, it is usually limited to voluntary reunion meetings or one-shot "booster" treatments.

Costs of commercial programs vary from no-fee or low-fee programs, sponsored by the American Cancer Society, the Lung Association or universities, to very expensive programs offered by for-profit organizations. For smokers who have smoking-related diseases or symptoms, some insurance policies cover certain stop-smoking programs. Information about local stop-smoking programs is available from local offices of the American Cancer Society and the Lung Association.

Physicians' Advice to Stop Smoking

While only 20 percent to 30 percent of smokers express any interest in commercial smoking cessation programs, 70 percent claim that they would quit if a physician gave them unequivocal advice to do so.

When physicians give advice to quit to patients who have no smoking-related symptoms, 5 percent to 20 percent will have quit by one year. On the other hand, physicians' advice to quit is generally more effective in those who have developed smoking-related symptoms and diseases. For example, in one study of smokers who had had myocardial infarctions, 63 percent of those who received a "special antismoking intervention" quit and remained abstinent for at least one year compared with only 27 percent of those who received routine care. The intervention consisted of dogmatic advice from a physician that the patient should never smoke and that quitting would reduce the risk of future myocardial infarctions. Similar advice was given to the patient's family, the patient was given antismoking literature and followed up periodically in an antismoking clinic.

Since smoking-related symptoms or diseases often motivate patients to stop, the occurrence of these symptoms or diseases provides the physician an opportunity for effective antismoking advice. Furthermore, because of the morbidity and mortality caused by cigarettes, even a small chance of success with any smoker is worth the effort.

TABLE 1

SMOKING CESSATION SUGGESTIONS FOR PHYSICIANS

1. If you smoke, set the example: quit.
2. Make advice firm and unequivocal.
3. Emphasize the health, aesthetic and economic benefits of quitting.
4. Follow up, especially during the first few months.
5. Give pamphlets and written tips on quitting (available from local offices of the American Cancer Society and the Lung Association).

SMOKING CESSATION SUGGESTIONS FOR PATIENTS

1. Set a date to quit.
2. Make a list of places and circumstances associated with smoking and make plans to avoid them.
3. Get rid of tobacco products and paraphernalia.
4. Make a contract with someone for quitting, and plan rewards for yourself when you succeed.
5. Try to quit "cold turkey." Reduce to 10 to 15 cigarettes a day as a prelude to completely quitting.
6. Remember that withdrawal symptoms will be transient.
7. Exercise may minimize the craving for cigarettes and the weight gain of withdrawal.
8. Spend more time with non-smoking friends and associates and minimize your contact with smokers.

Advice to quit should be unequivocal and should emphasize the functional, aesthetic and economic benefits of quitting. Physicians and other health professionals might also encourage nonsmoking by setting an example and by discouraging smoking in offices and workplaces.

A few smokers quit almost effortlessly but for most it is a difficult task that requires preparation and persistence. In general, smokers should set a date to quit. Before that day arrives, they can prepare in several ways. For several days they can record the number of cigarettes smoked and the situations in which they were smoked. They can then plan to avoid or change these situations during withdrawal. A recent or potential quitter should plan to spend more time with friends and associates who do not smoke and less time with those who do. They may also find it helpful to get rid of all tobacco products, ashtrays and lighters. Some may find that making a contract with themselves, or with nonsmoking friends, can provide extra determination to quit.

A physician can help by advising potential

quitters that withdrawal symptoms will be transient. Some patients may be able to minimize withdrawal symptoms, especially the craving for cigarettes, by physical exercise or simple relaxation exercises.

There is some evidence that quitting "cold turkey" may produce less discomfort than slow withdrawal. For those who cannot quit abruptly, progressive reduction of cigarettes smoked each day or switching to a very low-nicotine brand can be tried. However, most smokers find it difficult to reduce their cigarette consumption below ten cigarettes per day, so these reductions should be used only as a prelude to complete quitting.

Most ex-smokers relapse and most relapses happen during the first few months after quitting. This is a time when follow-up visits or phone contacts with a physician will be most effective in helping an ex-smoker achieve permanent abstinence.

An outline for quit-smoking advice is provided in Table 1. A wide variety of pamphlets describing benefits and methods of quitting are available from local offices of the American Cancer Society or the Lung Association.

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Medical Practice Questions

EDITOR'S NOTE: *From time to time medical practice questions from organizations with a legitimate interest in the information are referred to the Scientific Board by the Quality Care Review Commission of the California Medical Association. The opinions offered are based on training, experience and literature reviewed by specialists. These opinions are, however, informational only and should not be interpreted as directives, instructions or policy statements.*

Methylethylketone Damage of the Immune System

QUESTION:

Does methylethylketone damage the immune system?

OPINION:

It is the opinion of the Advisory Panels on Allergy, Internal Medicine, Pediatrics, Preventive Medicine and Public Health, and the Committee on Environmental Health that there is no scientific evidence that methylethylketone (MEK) causes damages to the immune system.